

WELWITSCHIA MIRABILIS HOOK. F. FROM SEED TO SEED IN THE BOTANIC GARDEN OF THE UNIVERSITY OF STELLENBOSCH, C.P.

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(With Plates 1 and II).

This famous plant is strictly protected and a landscape with some plants of it is shown on the 10/- postage stamp of South West Africa. The plants grow about 100 miles north of Swakopmund and from there along a small strip up to Angola and also in Angola. There they are not rare at all and further to the north they grow also among grass and small bushes and thus are not confined to desert-like land. It was near the border of Angola that they were first found nearly a century ago by the famous English traveller Thomas Baines in 1858. One year later the Austrian medical doctor Friedrich Welwitsch also found it there. It was named *Welwitschia mirabilis* Hook. f. in 1863 (*mirabilis* = wonderful, strange). To-day it is made into a family of its own: Welwitschiaceae which is placed between the Gymnospermae (coniferous plants) and the Angiospermae.

Its native name is N'tumboa, the meaning of which is unknown. The natives use the dry parts of the leaves for fire-making and the bigger stems as chairs. There is no other use reported.

No doubt this plant belongs to those which derive their moisture from the underground water and most of the plants grow therefore in old riverbeds where they can obtain it. If necessary the root may grow 20—40—60 feet long, but sometimes it is much shorter. As rains are scarce in its home, the young plants depend at first on the heavy mist which is formed regularly. Thus they are slow-growing, and old plants with stems of a diameter of 10—15 feet will be very old and may reach one thousand years and more.

More than a quarter of a century ago seeds of this famous plant were first germinated at the Botanic Garden of the University of Stellenbosch. As the seedlings immediately form a long tap-root, the seeds were sown into about three-foot long drainage pipes which were closed at one side so that only a few holes were left. The soil used was a decomposed granite mixed with a certain quantity of old leaf mould. Between a fortnight and three weeks later the seeds germinated. At first the two cotyledons appeared, followed some time later by the real leaves. By then the

cotyledons had faded and disappeared. These leaves are the only leaves the plant ever has. They go on growing at the base throughout its life, wearing away at the tips and often becoming torn down to the base. The stem is stout, with a two-lobed form and almost circular in section. It narrows down into a stout tap-root. At the edges of the two lobes are two grooves, from each of which springs a leaf. The stem continues to grow in thickness and exhibits concentric grooves upon the top surface. In the outer (younger) of these grooves the flowers appear in dichasia of small (male) or larger (female) spikes. They are covered by bracts which become bright red after fertilization. The flowers are dioecious and are produced annually. With us it has taken 23 years to show the first (female) flower. The male plants form up to 200 small cones, each of which is about one inch long. They are ripe towards the beginning of January and show yellow stamens ripening from the base to the top of the cone until about the end of April. They also show a rudimentary gynoeceum which is clearly to be seen. The female cones are much larger, about 3—4 inches long, and in Stellenbosch only about 8 cones were produced. They flower during the same period and when they are ripe for fertilizing one notices a drop of glistening fluid at the top of the hair-like stigma. In its natural habitat it is fertilized by a brown-red bug. With us we had to do it by hand. In its home the seeds ripen during May and as they are winged they are blown out and dispersed by the wind. As there is much fog at that time, the seeds will germinate immediately and by means of the long tap-root, the young plants try to reach the underground water.

With us the first cones were ripe on September 16th and 18th 1953 respectively and there were about 50 good seeds in one cone. Five of these seeds were sown on October 10th and by October 23rd the first had germinated, followed by the second one on October 26th. Hence we have now the chance to have our own seedlings fruiting in another quarter of a century.

In their natural home one will sometimes find a fungus living in the seeds which are destroyed by it, so that they fail to germinate. The seed is then filled with its black spores. Happily this fungus is not widely distributed so far and thus there appears to be no danger that it may eradicate this most interesting and unique plant.



PLATE I.

Welwitschia mirabilis Hook. f.

Female plant grown at the Botanic Garden, University of Stellenbosch, March 1953.

Photo: G. C. Crafford.

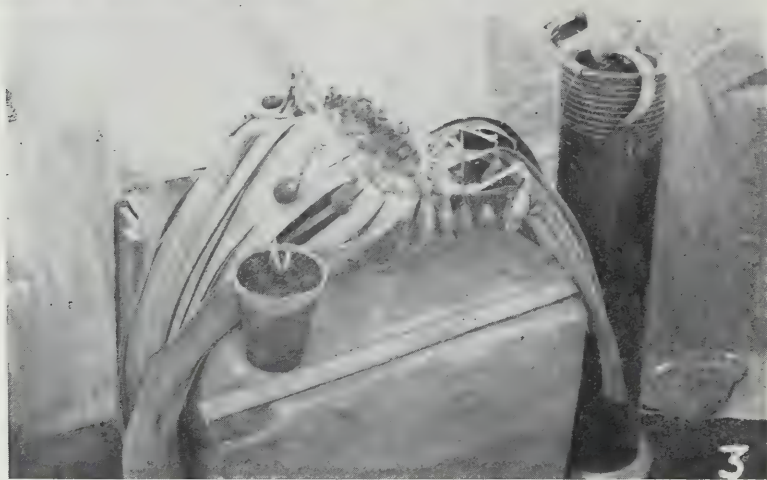
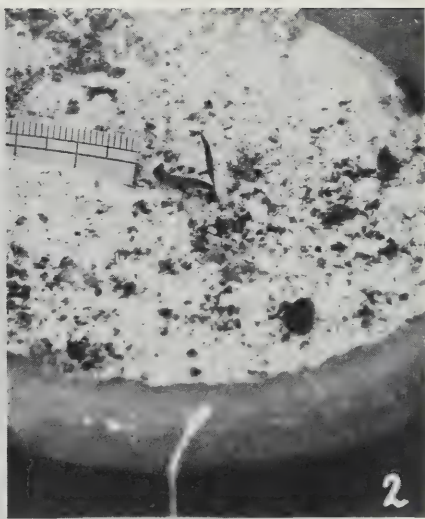


PLATE II.

Welwitschia mirabilis Hook. f.

FIG. 1. Male plant grown at the Botanic Garden, University of Stellenbosch, March 1953.

Photo: H. Herre.

FIG. 2. Seedling from Parents grown from seed in the Botanic Garden, University of Stellenbosch, November 1953.

Photo: G. C. Crafford.

FIG. 3. l. to r. Young seedling, an old plant, approximately 200 years of age, from its native habitat, and a 10-year old specimen grown in a Drainage Pipe. November 1953.

Photo: H. Herre.